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ABSTRACT

Seventeen sixth and seventh grade inner city teachers participated in a knowledge-centered, technology-assisted, community-of-learners integrated approach to instructional experiences known as Schools for Thought (SFT). With the help of university staff, teachers received assistance in making professional change related to SFT instructional and learning philosophy. The SFT components were: Jasper Woodbury Mathematics, Computer Supported Learning Environment, and Fostering a Community of Learners. Teachers had to implement SFT's components; begin knowledge-centered teaching; let students help determine what to study; let students talk about everything; create communities of learners; wait for directed teaching moments; reorganize their rooms; manage all the new learning activities; visit the university for teacher development; and welcome research assistants (RA's) and visitors into the classroom. SFT offered the following: a week of daily inservice summer training, an RA in each classroom for at least 2 hours a day; RA's and substitutes for teachers at least once a week so teachers could gather to discuss SFT challenges and develop curriculum; technology support; expert support on classroom management; and monetary compensation to volunteer. Three categories of teachers emerged as they used SFT philosophies: pioneers, those who waited and watched while making minimal changes, and rebels. SFT was very effective in providing teachers ways to practice exciting and efficient learning techniques and students ways to find fulfillment in school. Teachers became expert learners who permitted true facilitation of learning. Students became researchers, better readers, and better people. (SM)

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Cognitive Perplexity in Maintaining Teacher Change: A Cultural View

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A paper presented at the annual meeting of the
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Cognitive Perplexity in Maintaining Teacher Change-
A Cultural View

The following pages provide a brief explanation of experiences from assisting 17 teachers to make and maintain professional change in relation to the emergent nature of Schools for Thought's (SFT) instructional and learning philosophy.

The purpose of the paper is to provide record of experience in and views concerning a knowledge centered, technology assisted community of learners integrated approach to instructional experiences known as Schools for Thought (SFT).

The paper provides the following:

- A brief explanation of the Schools for Thought(SFT) project, its three components and former successes: Jasper Woodbury Mathematics, CSILE(Computer Supported Learning Environment), and Fostering a Community of Learners.
- Under the umbrella of teacher development an outline is provided of what was expected of the teachers and what was provided by the research team. As in all teacher research anecdotal information concerning teacher change and teacher development is also given.
- An overview of curricular endeavors provides an explanation of the power of participant structures: the avenues for success in the knowledge centered classrooms assisted by PC computer technology. The establishment of a dilemma through classroom or whole group brain storming and categorization of student questions designate the areas of students' research. A summary of effective uses of cross talk, reciprocal teaching, jigsaw, and question generation is also provided.
- A brief report on the statistical support in change of student attendance and achievement.

The paper concludes with further challenges in teacher development, classroom management, and overcoming phobias in technology and authentic participation of students. The purposed theme concerning these challenges involves the use of a metaphor of culture shock. In addition, an explanation of what transpires in efforts to assist teachers to make

change in personal belief structures and practices is given. Some educators hold misconceptions surrounding teacher-student relationships and their use of content (that which is to be learned) and have a difficult time letting students take more responsibility for their learning. These belief structures and misconceptions have a tremendous influence on teacher and student success in making and maintaining change.

What is Schools for Thought?

At the time of this research SFT was a joint project of Vanderbilt University, Berkeley, Ontario Institute for Studies in Education, and the St. Louis Science Center. Our responsibility was to research the implementation of the all components of SFT in inner city schools in Nashville, TN. Upon completion of the three year project a new school would be built next to the Science Center in St. Louis, MO. As of the present Compton-Drew ILC Middle School is in its first year of operation as a designated SFT school in St. Louis.

The project involves the combination of three instructional components:

- Jasper Woodbury a series of mathematical problem solving modules printed on Laser disc technology. The stories presented in Jasper provide ample opportunities for developing a need-to- know math. These episodes are used as a means to develop anchored instruction for groups to continually revisit in order to solve the problem. This series was created and researched by Vanderbilt's Learning Technology Center.

- Fostering a Community of Learners(FCL) a means by which literature/reading can be combined with science to foster communities of learning within a regular classroom. This component of SFT was created and researched by Berkeley. FCL provided many of the participant structures that are pervasive through out SFT. These structures include those used to develop the curricular activities involved in instructional experiences. FCL's participant structures are : dilemma, question generation, categorizing questions, research, reciprocal teaching, jigsaws, cross talks, and projects.

- Computer Supported Intentional Learning Environment (CSILE) is a software program created by the Ontario Institute for Studies in Education, that creates a way for student electronic collaboration. The CSILE program also allows the teacher a means by which higher order questions can be asked of the community of learners. In many ways CSILE aids in cementing community. Bumping-up understanding while permitting all students to read each others response to such questions is also a possibility with CSILE.

A Brief History:

The Schools for Thought endeavors began with two self-contained 6th grade classrooms in inner city schools in Nashville, Tennessee. These students were then followed to their seventh grade classrooms in two additional sites. In the second year, a team of teachers collaborated at one of the original sites with two separate home rooms. Simultaneously, two new teams of two teachers in each of the feeder schools of the seventh grade classrooms were created making a total of six classrooms for SFT. On the third year of the grant all six classes of the sixth grade in the original school became Schools for Thought as well as two 7th grade sections in North School, while the classes in the previous year were continued making a total of 13 classrooms.

WHAT DID WE ASK THE TEACHERS TO DO?

- Implement the three components of SFT.
- Stop authoritative, didactic, and/or student centered teaching. Begin knowledge centered teaching.
- Allow students to create the notion of what to study and seek information to understand their own questions concerning the dilemma.
- Allow students to talk about everything. Provide participant structures by which students feel free and non-threatened to reveal their ideas through cross talks and jigsaws.

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- Create communities of learners. Learners eventually value and need the knowledge that their classmates acquired through research.
- Allow and seed conversations of students' ideas through participant strategies...cross talks, jigsaws, presentations....feedback sessions.
- Conversations in small cooperative groups as well as whole class.
- Allow curriculum to emerge, but be in step with local and state learning objectives.
- Patiently wait for opportune times for directed teaching moments. Bring the students to a need to know and then provide the appropriate instruction and information. Perhaps this describes true facilitation.
- Reorganize their rooms. Change their physical plants to make room for computers. A minimum of 8 Mac 520's, 560's, and 620's were provided as well as a printer. Networking to a server machine was between classrooms meant each teacher had to put up with many cables.
- Manage all the new learning activities, movements, and noise. Develop rotation schedules that gave students the opportunities to use technology and develop group endeavors.
- Allow different groups do their work simultaneously and provide plans and direction that help them identify their task and get it done.
- Commit to coming to the university for teacher development once a week for approximately three hours.
- Welcome the Research Assistant into the classroom and collaborate with them in creating the SFT classroom.
- Welcome and expect many vistors into their classrooms from other universities, offices, and staff.
- Change everything about their teaching and the school day.

WHAT DID WE PROVIDE THE TEACHERS?

- One week of daily in-service during summer. In service included introduction and practice of all philosophies and participant structures. For example, if we were introducing R.T., we practiced an R.T. session. When we taught CSILE we used CSILE as the tool for instruction for the teacher. Hands-on experiences gave all of the teachers a taste of success in almost all research expectations.

- A three-four day Summer Institute was created to assist teachers in all sites to come together at University of Missouri at St. Louis. This was held every year in August with many of the principle investigators attending. Creators of the three SFT components assisted in presenting instructional experiences.

- We also provided a Research Assistant in each classroom for at least two hours a day or every other day. The project manager was also in each classroom at least once per week assisting a particular activity as well as other occasional visits by project directors.

- We provided the R.A.'s and or substitutes for each teacher at least one afternoon a week for teachers from different SFT locations to gather together and discuss challenges in SFT philosophies and develop curricular content. These weekly development sessions were facilitated by specific agendas created by the project manager and director.

- Most technology support of hardware and software was provided by the research team. The school systems purchased most of the hardware. Extra technology training was provided with a few hours of training from the school system. This support included the trouble shooting required in most networks.

- An expert in classroom management supported most teachers in adjusting to SFT classroom procedures.

- Teachers were given monetary compensation to volunteer. They received a stipend from the grant research monies and occasional compensation from their school board for days that required travel and or substitutes for all day training.

Culture Shock and Teacher Change

One particular comparative that we learned in developing teacher change was the notion of how similar culture shock is to the SFT experience. Several activities and opportunities for curriculum planning and teacher development provided all of our teachers a "taste" of different components of the SFT(culture) prior to and during the implementaion of the project. As stated previously we asked the teachers to change everything about themselves and their students. In a sense, we asked them change much more than just classroom

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environment, climate, and or teaching styles. Comparatively, the experiences of culture shock entail the clash of cultural norms and assumed expectations which produce opportunity for decisions toward or against change. Entering a different culture includes experiencing challenges required to become somewhat like the other people(enculturation) to survive and yet maintain or create identity. These processes become a trial for teachers in new situations as well.

As we began the practice of SFT philosophies(with students) three definite categories of teacher "type" (behavior) emerged. The three categories as named by this researcher include: 1. Pioneers, 2. Ladies-in-waiting(LIWs), 3. Rebels without a clue(BELS). Some teachers entered into these new experiences as pioneers on the frontier, while others seemed to become rebels-without-a -clue as if hitting the proverbial brick wall.... and then turning back to the most comfortable norm of their teaching identities "tradition." All the while, quietly swimming somewhere between the two were participants who waited, watched, and tip-toed through minute exercises of instructional change.

Pioneers often remain flexible to the whims and nuances of their new arena. The nuances seem to include a romantic phase of excitement and a desire to be like the "new" followed by anxious anticipation to recognize acceptance and ending with evidence of ownership of the "new" through adaptation and assimilation. Teachers who become actively involved in the experience of failings and successes of being a "foreigner" in their own classrooms seem to be motivated either through excitementand/or fear. To be more "different" than before and to envision oneself becoming like the "new" is infuriating for some and can motivate them to become more-like-than-unlike. Yet, the BELs experience the

culture-shock and can not seem to get past the differences and appear to "naturally" behave traditionally. The traditional in the midst of a culture that has new experiences and endeavors tends to stifle and inhibit instructional and learning success. The levels of stress increase and the BELs' actions reflect what seem to be inappropriate biases and/or prejudices toward the culture. In short, they become the equivalent of the "Ugly American" and are talked about by researchers and peers as being uncaring and difficult to work with. Culture shock seemed to cause the person to continually question the "new way" of doing things not so much in a way of a questioning to learn and adapt, but as criticism. In many cases these criticisms become the excuse or the reason for not doing the new.

In one case a BEL had a mixture of students who had a successful SFT experience in a previous grade and another group who were just starting. The following student/teacher/researcher interaction is an example of the *Ugly American* parallel:

> Student : Ms. X, I need to ask you about the work we are to do on the sheet. I wondered .....
> Teacher: (Hands on hips, raised voice, talking down to student). What do you mean? I thought SFT students were suppose to know this. Go sit down and work on it and see what your group has. (Turns to researcher) Are SFT students suppose to talk that way?
> Researcher: Yes.
> Second student: Ms. X I need help with this sheet.
> Teacher: Well, ok let's see. See sweetie you....

Later this episode was reflected on by the researcher and the teacher. The teacher's explanation was that SFT would never work and these kids can't handle it. She felt lost and often expressed that she just didn't know what to do for lessons. She apologized for making such a distinct difference between the students due to her frustration and finally admitted that

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she was intimidated by the kids who knew more than she did about the computers and the way things were supposed to be in SFT. She struggled with basic trust in the students.

In addition, Bells' behaviors include an overt expression of willingness for "things to be done in their classrooms" and they tend to work very hard to "get the kids ready," but will generally not take part themselves. They let the researcher or trainer or guest do it, perform the practice. We found that when BELs attempt to accomplish the "new", they focus on or become preoccupied with the one activity, the "performance." The learning purposes for the participation tends to escape them. BELs ask few comparative questions and many times demand to be told what to do. An example follows:

> Researcher: "Can we talk about what is going on your classroom?"
> Tchr.: Yes, I really want your input.
> R: First of all tell me what you were hoping to accomplish with that activity?
> T: Well, I was doing an R.T. session.
> R: Why? What was the purpose?
> T: That's what you do in SFT.
> R: What was the learning objective from the reading that you wanted the students to comprehend?
> T: Uh, well I just did it because that is what I am supposed to do. The article was a great 4 page selection from ..., but they had trouble with it. I guess. I can try tomorrow.
> R: Why do you think the kids had trouble with the reading?
> T: I just don't think they get R.T. I knew you were coming so I wanted to do R.T.
> R: What did you really want them to get from the article?
> T: I am not really sure now. I needed to do R.T.

Culture shock and the Pioneer manifests itself in what seems to be initial questions of the new, and effective placement of the new in the repertoire of practices and continuous attempts to manipulate and fit new notions into purposeful action. Pioneers rejoice and share successes and continually visualize further opportunities in what has been completed. Their

ownership of the new is witnessed in their ability to visualize, practice, adapt, and create. This type of teacher showed further assimilation to the "new" by naturally refusing to do exactly the same things in consecutive years. Three such teachers shared within the first 6 weeks of the project, "Come over here and look at what my students are doing! You know, I have decided that next year I think I want to try putting more writing and thinking in this unit by... ." Furthermore, Pioneers developed and used new language with researchers and students. For example, without fail, all of the pioneers talk about their students as learners of a higher order than before. Levels of expectation seem to be raised consistently higher for the next year's students.

One way we knew that these teachers accomplished more than they realized was how they automatically/naturally expected their next year students to be thinkers and problem solvers. These manifestations of changes in teacher expectation and practice define our understanding as to whether the teachers truly adopted and internalized (culturalized) SFT. Inadvertently, pioneers experience a period of time when their excitement supersedes their student's readiness for change. By this I mean, the teacher leaves his/her students behind in the cognitive experiences of developing, for example, participant structures. Perplexity and confusion begin to intercede and cause different kinds of challenges that manifest themselves as classroom management issues. One example is as follows:

> Tchr: I just don't know what exactly is going on here.
> Researcher: What do you mean?
>
> T: Well, It just seems these kids just aren't thinkers yet. I just really want them to be further than they are. I guess I want them to be thinkers like my students were last year. It is almost like pulling teeth to get them to think and

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express their thoughts.

R: Can you reflect for just a minute or find your plans from last year at this time? And decide if you are doing something different this year than last?

T: Yes, let me look.
(Face red): Oh my! We were doing more exercises in developing ways to express our thoughts and accepting them as a community. I forgot how we had to do that as a class. And you know I am having to get on to them more and maybe it's because they just really don't know what to do in this new way of doing things in my classroom.

Ladies-in waiting(LIWs) handle culture shock by asking permission of the expert before practicing anything. These type teachers tend to crave immediate feed back for exercising any and all portions of SFT. LIWs seek to please the researcher, wait to ask permission before attempting solo endeavors, and continually reflect on the meanings of things and how those meanings relate to what they did last year. In short, they compare cultures. One LIW stated: "We had thought we would do this with the integration with literature and social studies, but we didn't start because we didn't know if you(researchers) wanted us to or not... Is it OK?" In addition, LIWs wait and watch to see how and when others will be successful or fail. Eventually, LIWs will own the new culture and become very comfortable. But, compared to the Pioneers, this type teacher tends to repeat the same curriculum with the notion of being more efficient. LIWs will not bring additional curriculum to the experience until they acquire a feeling of effeciency. We also observed that they will takea step by step approach to present students with new participant structures. There is a general reduction in classroom mis-management in these classrooms as well.

In review, the SFT experience can create totally different classroom cultures for students and teachers leading to instructional culture shock. Instructional culture shock will

influence teachers to make decisions concerning their identity and sate-of -being. All teachers must be assisted in assimilating the new culture. Supporters must provide means by which levels of difficulty can be minimized and thereby reduce the sense of loss that some teachers feel as they attempt to become different. They must constantly revisit the vision and learn to the value of differences and accept the new as something that is appropriate. Researchers/administrators must provide services that sustain incorporation of the new into their true practice, into their culture. Recognizing these kinds of changes as culture will assist the teachers to create and process their new identities. The loss of identity carries many detrimental side effects and outcomes. Teachers who are asked to change the whole school day and their belief structures concerning learning and teaching need visual as well as kinesthetic examples of how one operates in the new culture. In short, teaching teachers the specific protocol(s) required to be successful in the SFT classroom tend to assist all teachers regardless of their teaching styles.

CLASSROOM MANAGEMENT

The issue of classroom control or the struggle with the feeling of a lack of control becomes one of the greatest challenges for producing change. Management is a process not strictly an event. We have found that seemly intelligent and resourceful teachers often feel threatened by students who have been given effective tools with which to think, while other teachers find student thinking and involvement in learning to be a great joy. Change in instructional procedure is an obvious necessity for many teachers regardless of planned educational research as in SFT. To the experienced teacher, administrator, and researcher

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classroom management is one of the most tenuous experiences in classroom teaching. Research in effective and successful cooperative learning for example has shown that teachers must adjust to what seem to be difficult time constraints and new levels of "acceptable" noise. Likewise, in hands-on activities and inquiry learning teachers must adjust to more student movement as well as noise. In SFT, noise levels must to be redefined in the minds of both student and teacher. Redefined to the point that the teacher must begin to listen for the types of noise and learn (develop a cognitive recognition of) what learning "sounds" like.

The point must be stressed however, that teachers who stem from more authoritative notions of teaching have a more difficult time or challenge to relinquish any form of trust(power) to the students. Mistrust is manifest in the actions and/or reactions of the teacher, for example, toward student movement during rotations and the most needed trips to the library. In most SFT classrooms, the student research team walks unattended to the library, it becomes imperative that procedures and expectations be developed for the "new" movement. A display of trust at levels far beyond the policed trip to the library must be expressed by teacher ,admistrator, and the librarian.

Change in teacher believe structures challenge teacher perceptions of the ownership of power in the classroom. One teacher in our research seemed confused as to who was in charge in the SFT classroom. In one instance she would place the students in groups and allow them to watch the video of a Jasper episode(that she had solved with the researchers), but instead of allowing the students to decide in a group how to solve the problem she hindered their learning by the following: (while starting and stopping the laser disc video) "Hey! Ok, ya'll need to pay attention to this...write this down you will need this to solve the

problem. Write these numbers down. Ok, and this next number on the screen..." When questioned by a researcher how she felt about the problem solving nature of Jasper, she explained how she believed that her students couldn't do the work, would get lost in the story, and never find the numbers that they needed. Her traditional way of behaving in her class was transferred to use of technology. She turned to different scenes in the disc as if turning the pages in her math book.

In conclusion, SFT has been proven to be a very effective way to provide children ways to find fulfillment in school endeavors and teachers a way to practice exciting and efficient learning techniques. The teacher becomes the expert learner permitting true facilitation of learning. Students become researchers and better readers and better people. In closing, I must say I found it ironic that though we made great strides in the SFT philosophies and have proven that such practices bring lasting change for most of our teachers, the school board was convinced that more money could go to SFT on mostly one count, the students absentee rates had dropped significantly. Compared to previous years and compared to students in the same grade at the same school in non-SFT classrooms our students still showed up for school more often. A second score-increase came from our students reading comprehension levels and writing ability. The generalizability of the SFT program is recognizable due to the search for efficient ways for technology to become a tool for learning and the efforts for better cultural understanding.

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